Abstract Text Submitted

Global operational SST and aerosol products from AVHRR over ocean: Current status, diagnostics, and potential enhancements

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Two global AVHRR products over ocean are routinely generated at NOAA/NESDIS. One is the sea surface temperature (SST) and the other is aerosol optical depth (AOD). SST retrievals are made during both day and night from the three AVHRR thermal emission bands centered at 3.7, 11, and 12 μm. Currently, SST retrievals are generated from AVHRR/3 flown onboard three KLM-platforms: NOAA-15 (morning), -16 (afternoon), and -17 (mid-morning). Three AODs are generated during the daytime from the AVHRR solar reflectance bands centered at 0.63, 0.83, and 1.61 μm. Current aerosol retrievals are made only from two afternoon platforms, NOAA-16 and -17. From AODs, the Angstrom exponent parameters related to particle size can be further estimated. This presentation will describe the physics underlying the two products and their current status. We will also describe global diagnostics of SST and aerosol retrievals using a number of previously developed self- and inter-consistency checks. The afternoon and mid-morning SSTs (from NOAA-16 and -17) are in close agreement, whereas the respective AOD products show some systematic differences, due to the AVHRR calibration uncertainties in the solar reflectance bands. Potential improvements to both SST and aerosol products, and prospects of aerosol correction to the derivation of SST, will be discussed.

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